

## Melanoma Fact Sheet

CIRM funds many projects seeking to better understand melanoma and to translate those discoveries into new therapies.

### Description

Worldwide, more than 160,000 new cases of the skin cancer melanoma are diagnosed each year. The vast majority are caught early enough that they can be cured by surgery. But when this tumor spreads—becomes metastatic—it becomes highly resistant to most current therapies and results in 50,000 deaths around the world each year. These deaths represent 75 percent of all the deaths caused by skin cancer. In the U.S., melanoma has the fastest rising incidence of any cancer.

When it is isolated to one area Melanoma is usually susceptible to the specialized cells in our immune system that seek out and destroy cancer cells. But when melanoma becomes metastatic there just are not enough of these specialized cells to keep up. Many years of research on ways to rev up this natural defense have produced only very limited results. Since our earliest round of research grants in 2007 California's stem cell agency has been funding scientists at the University of California, Los Angeles, to find ways to use stem cells to provide sufficient numbers of these immune cells to fight the cancer over the long-haul. (The full list of CIRM awards for this work is below.)

The specialized immune cells use a protein called the T-Cell Receptor (TCR) to seek out and recognize cancers. Early CIRM funding allowed the researchers to see if they could add TCR genes to a group of immune cells that lack the protein, to see if that could help boost their cancer-fighting abilities. This work also provided important clues on how to create immune cells from stem cells, something that would be useful in a clinical trial. Other work looked at the best ways to introduce the TCR gene into stem cells.

### Clinical Stage Programs

#### University of California, Los Angeles

This team plans to use gene modification technology to create two types of cells that have T-Cell Receptors that specifically target melanoma or other metastatic cancers. They hope to provide patients with modified mature immune cells designed to efficiently seek out and destroy the tumor, as well as blood-forming stem cells that have been modified so that they can produce a perpetual supply of immune cells capable of recognizing melanoma or other metastatic cancers. They are conducting the pre-clinical testing and plan to file an Investigational New Drug (IND) application which is required by the FDA to test new therapies in clinical trials.

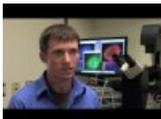
- [Read about the team's progress](#)

### CIRM Grants Targeting Melanoma

Researcher name	Institution	Grant Title	Grant Type	Approved funds
Zack Jerome	University of California, Los Angeles	Generation of clinical grade human iPS cells	New Cell Lines	\$1,341,000
Zoran Galic	University of California, Los Angeles	Genetic Enhancement of the Immune Response to Melanoma via hESC-derived T cells	SEED Grant	\$616,800
Antoni Ribas	University of California, Los Angeles	Stem Cells for Immune System Regeneration to Fight Cancer	New Faculty II	\$3,072,000

Antoni Ribas	University of California, Los Angeles	Genetic Re-programming of Stem Cells to Fight Cancer	Disease Team Therapy Planning I	\$97,785
Antoni Ribas	University of California, Los Angeles	Genetic Re-programming of Stem Cells to Fight Cancer	Disease Team Therapy Development - Research	\$19,875,776
Robert Dillman	Caladrius Biosciences	Tumor stem cell-targeted immunotherapy for metastatic melanoma –a randomized phase 3 clinical trial	Clinical Trial Stage Projects	\$3,000,000
				Total: \$28,003,361.00

**CIRM Cancer Stem Cell Videos**

 <p><b>Patient's Stage IV Cancer Vanishes during CIRM-Funded Clinical Trial</b></p>	 <p><b>CURED: Stem Cell Clinical Trial Stories</b></p>	 <p><b>UCLA Clinical Trial Targets Cancer Stem Cells: A Patient's Story</b></p>	 <p><b>Role of Stem Cells on Cognitive Dysfunction after Cancer Therapy</b></p>
 <p><b>Stem Cell Therapies for Leukemia: Marching Toward the Clinic</b></p>	 <p><b>Andrew Goldstein, UCLA - CIRM Stem Cell #SciencePitch</b></p>	 <p><b>Michael Rothenberg, Stanford - CIRM Stem Cell #SciencePitch</b></p>	 <p><b>Anica Sayoc, City of Hope - CIRM Stem Cell #SciencePitch</b></p>
 <p><b>Catriona Jamieson, UCSD - CIRM Stem Cell #SciencePitch</b></p>	 <p><b>Paul Knoepfler, UC Davis - CIRM Stem Cell #SciencePitch</b></p>	 <p><b>Amy Spowles, Humboldt State University - CIRM Stem Cell #SciencePitch</b></p>	 <p><b>Yi Eve Sun, UCLA - CIRM Stem Cell #SciencePitch 2</b></p>
 <p><b>Irving Weissman, Stanford - CIRM Stem Cell #SciencePitch</b></p>	 <p><b>Brain Tumors: Advancing Stem Cell Therapies - 2011 CIRM Grantee Meeting</b></p>	 <p><b>Leukemia: Advancing Stem Cell Therapies - 2011 CIRM Grantee Meeting</b></p>	 <p><b>Spotlight on Cancer Stem Cells</b></p>
 <p><b>Spotlight on Basic Research: Irv Weissman</b></p>	 <p><b>Spotlight on Leukemia: Welcoming Remarks</b></p>	 <p><b>Spotlight on Leukemia: Catriona Jamieson, M.D.</b></p>	 <p><b>Spotlight on Leukemia: Clinical Trial Participants</b></p>
 <p><b>Progress and Promise in Leukemia</b></p>	 <p><b>Genetic Molecule Enables Safer Method For Creating iPS Cells</b></p>	 <p><b>Catriona Jamieson Talks About Therapies Based on Cancer Stem Cells</b></p>	

**Find Out More:**

Stem Cell FAQ | Stem Cell Videos | What We Fund

Source URL: <https://www.cirm.ca.gov/our-progress/melanoma-fact-sheet>